

STAAR Category 1

6 questions on STAAR

7.6(H) solve problems using qualitative and quantitative predictions and comparisons from simple experiments

7.6(I) determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces

7.2(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers

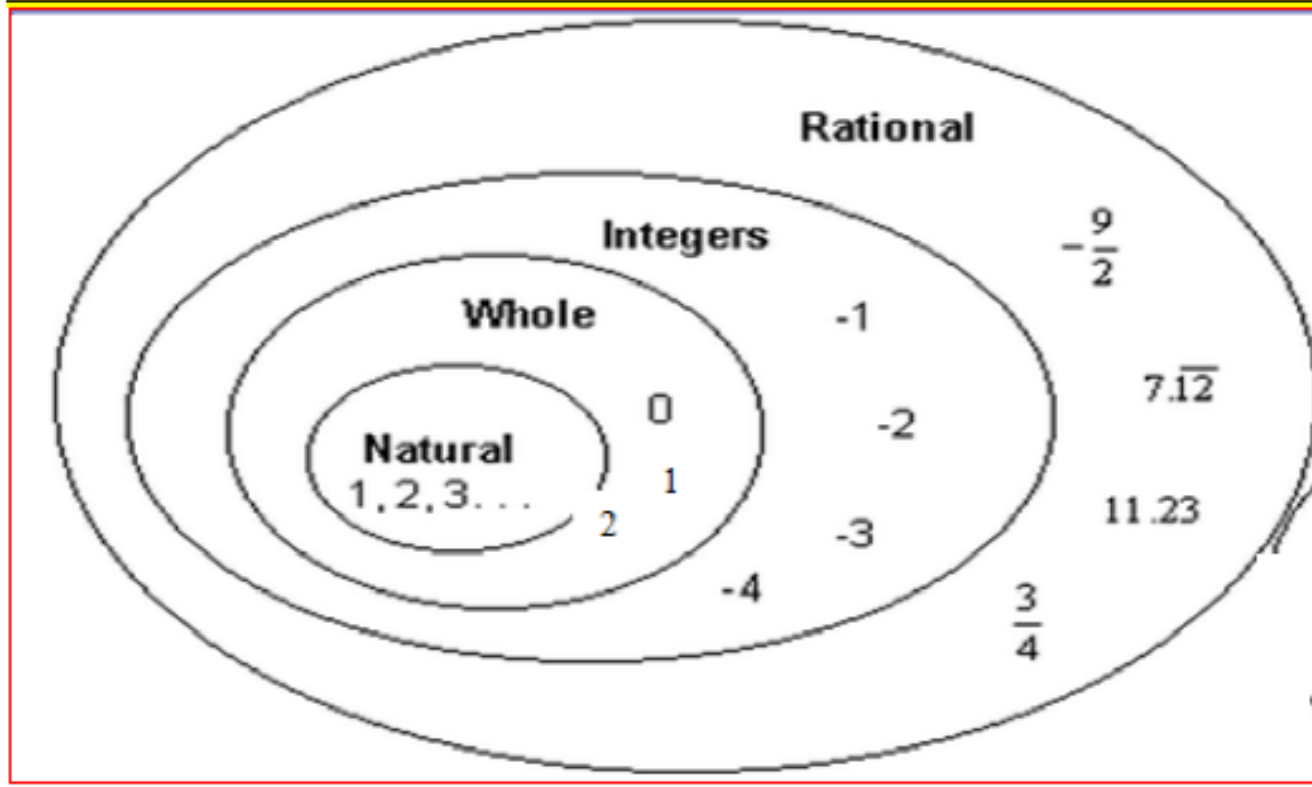
7.6(A) represent sample spaces for simple and compound events using lists and tree diagrams

7.6(C) make predictions and determine solutions using experimental data for simple and compound events

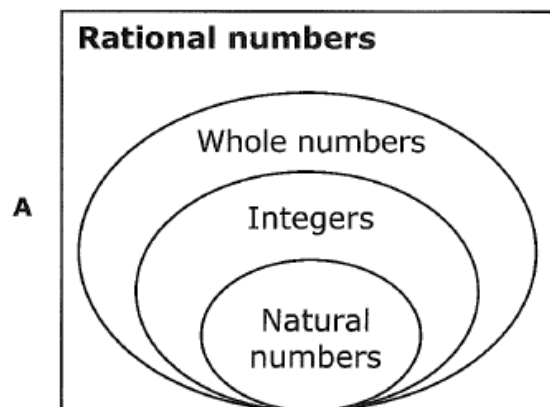
7.6(D) make predictions and determine solutions using theoretical probability for simple and compound events

7.6(E) find the probabilities of a simple event and its complement and describe the relationship between the two

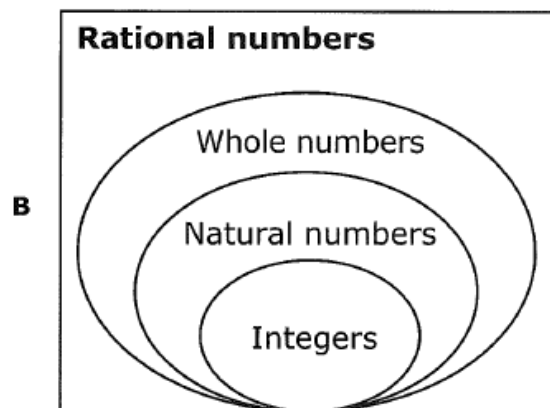
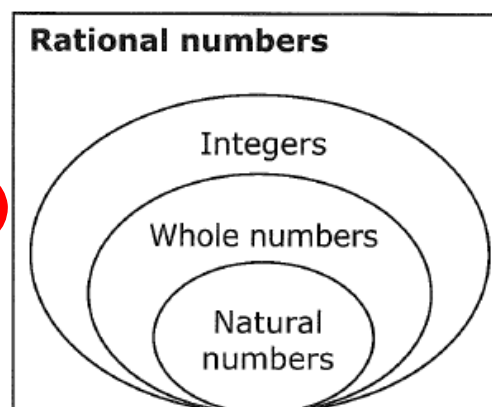
RATIONAL NUMBERS: KNOW THIS! MEMORIZE IT! DREAM ABOUT IT! 😊



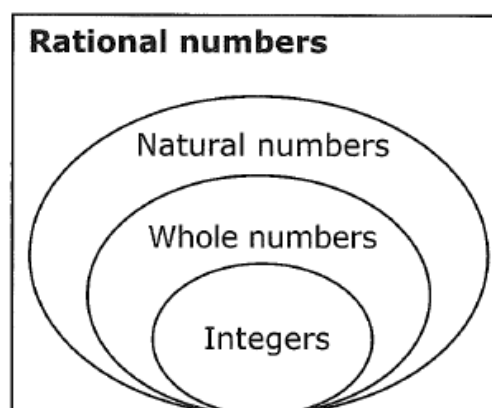
Which diagram describes relationships between sets of rational numbers?



C



D



➤ Probability

$$\text{probability} = \frac{\text{event/s}}{\text{number of outcomes}}$$

Theoretical Probability shows what SHOULD happen

Experimental Probability shows results from the experiment.

➤ Find the probability of more than one event.

Find the probability of the first event and multiply that result times the probability of the second event. If the problem says WITHOUT REPLACEMENT... remember, your totals will change!

Example Problem 1:

- ❖ A math game is played with a fair number cube and a spinner with 4 equal sides colored purple, blue, red and green. What is the probability of rolling an even number and spinning red?

$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

Example Problem 2:

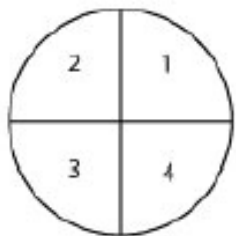
- ❖ Cristina has a bag with 2 red marbles, 3 green marbles and 3 white marbles. What is the probability of randomly pulling out a red marble, not replacing it, then pulling out a green marble?

$$\frac{1}{4} \times \frac{3}{7} = \frac{3}{28}$$

Example Problem 3:

The spinner below was spun 50 times. What is the **EXPERIMENTAL** probability of spinning a 4?

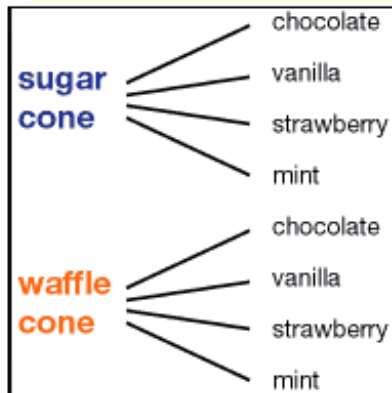
Be Careful, they might give you the results of the experiment and then ask for theoretical probability! What is the theoretical probability below? What is the difference between the two?



Outcome	1	2	3	4
Frequency	12	10	15	13

$$\text{Exp. } \frac{13}{50} \quad \text{Theor. } \frac{1}{4} \quad \text{Difference: } 26\% - 25\% = 1\%$$

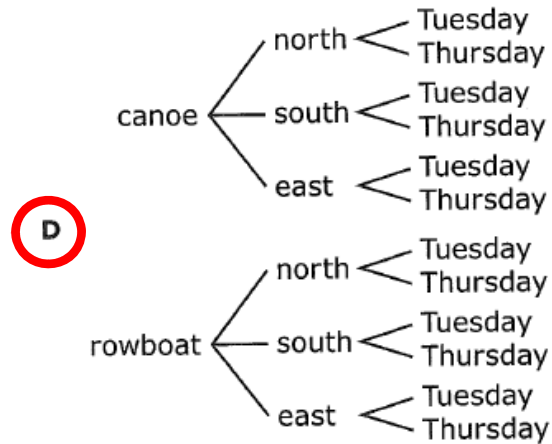
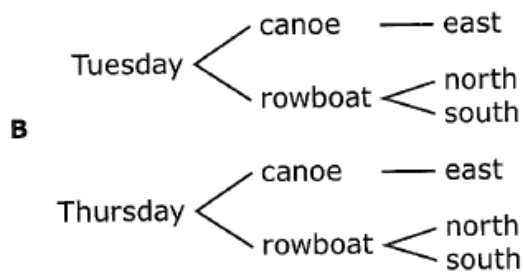
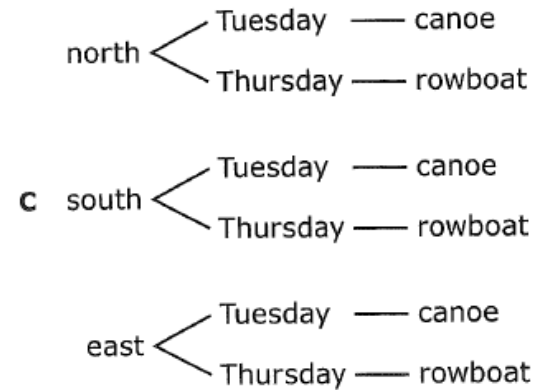
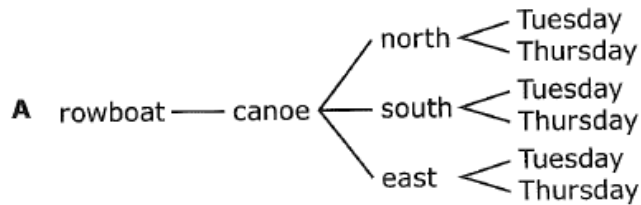
Sample Spaces for probability: Tree Diagrams:



YUMMY!!!



Rick is going to travel on a river. He has two choices of boat: a canoe or a rowboat. The river splits into three smaller streams going north, east, and south. He can begin his trip either Tuesday or Thursday. Which tree diagram shows all the possible choices for Rick's trip?



- Probability questions can also be Proportions (look for words: predict or expect)

Example Problem:

- ❖ Kathy recorded that 2 out of 15 seventh graders attend tutorials on Saturdays. Based on the results, how many 7th graders out of 310 can you expect to come to Saturday tutorials?

A 17

B 30

C 40

D 65

$$\frac{2}{15} = \frac{x}{310}$$